2.0 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the proposal of Southwest Gulf Railroad Company (SGR) to construct and operate a rail line over its Proposed Route in Medina County, Texas. The chapter also discusses the various rail alternatives to the Proposed Route that the Section of Environmental Analysis (SEA) has studied throughout the environmental review process and the No-Action Alternative and focuses on the development of the Eastern Bypass Route, the MCEAA[1] Medina Dam Alternative, and SGR's Modified Medina Dam Route (collectively, the Eastern Alternatives).

2.1 Proposed Action

As described in Section 2.1 of the Draft Environmental Impact Statement (DEIS), SGR's proposal would involve the construction of an approximately seven-mile single-track rail line between a proposed Vulcan Construction Materials, LP (VCM) quarry site and the Del Rio Subdivision of the Union Pacific Railroad Company (UP).

As part of the proposed action, a loading track would be built at the quarry site to handle and load materials into rail cars. An automated aggregate loading system would be used to load the rail cars at the loading track. The track layout of the loading track would consist of either a two-mile loading loop or a series of one-mile parallel tracks in the same general vicinity. In addition to the loading track, SGR would also construct a rail interchange area, close to the connection with the UP line, consisting of a single main track with a possible side track approximately one mile long, which could be used to temporarily store a loaded or unloaded train.

Based on estimated rail shipments totaling five million tons per year, SGR expects to operate approximately four trains per day, including both inbound (empty) and outbound (loaded) traffic, upon full operation of the proposed quarry for the reasonably foreseeable future. Each train would consist of 100 railcars; each railcar would have a capacity to carry 100 to 120

[1] MCEAA is the acronym for the Medina County Environmental Action Association, which is the citizens' organization that proposed the MCEAA Medina Dam Alternative.

tons of aggregate. Thus, approximately 20,000 - 24,000 tons of aggregate would be shipped from the quarry to the UP rail line per day, 250 days per year.

Section 2.2 of the DEIS contains a more detailed description of SGR's proposed construction activities and Section 2.3 of the DEIS contains a more detailed description of SGR's proposed rail operations and maintenance activities.

2.2 Alternatives

As discussed in the DEIS, as part of the environmental review process required by the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq*. (NEPA), an agency must evaluate all reasonable and feasible alternatives for a proposal, including the No-Action Alternative, and briefly discuss reasons for eliminating any unreasonable alternatives from further consideration.[2] The reasonable alternatives considered in detail, including the proposed action, should be analyzed in enough depth for reviewers to evaluate their comparative merits.[3] The goals of an action delimit the universe of the action's reasonable alternatives,[4] which means that to be considered reasonable, an alternative must accomplish the purpose of the proposal. The objectives must not be defined so narrowly that all alternatives are effectively foreclosed, nor should they be defined so broadly that an "infinite number" of alternatives might further the goals and the project would "collapse under the weight" of the resulting analysis.[5] A reasonable range of alternatives need not include all possible alternatives as long as examples from a full spectrum of alternatives are covered.[6]

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[2] 42 U.S.C. 4332(2)(c)(iii).

[3] See 40 CFR 1502.14.

[4] Citizens Against Burlington v. Busey, 938 F.2d 190, 195 (D.C. Cir. 1990).

[5] Id. at 196. See also Forty Most Asked Questions Concerning Council on Environmental Quality's (CEQ's) NEPA Regulations, 46 Fed. Reg. 18026 (1981) (Forty Questions), Question 1.

[6] See Forty Questions, Question 1.

The primary purpose of SGR's proposed rail line construction and operation is to transport limestone from VCM's quarry to the UP rail line for shipment to markets in eastern Texas. Thus, all reasonable and feasible alternatives for SGR's proposal must satisfy this purpose.

2.2.1 Non-Rail Alternatives

According to SGR, VCM considered alternative means of transporting quarried materials to the UP line, including the use of a conveyor system and trucks. VCM rejected the conveyor system option, because of the economic cost of building and maintaining more than seven miles of belts and idlers. SGR states that if the proposed rail line were not built, VCM would use trucks to transport limestone from the quarry to the UP line. Thus, in the DEIS, SEA conducted a review of the use of trucks as part of the analysis for the No-Action Alternative. SEA received comments to the DEIS that asserted that SEA had improperly defined the No-Action Alternative. SEA will address the comments received on this issue in the Final Environmental Impact Statement (FEIS).

Under the No-Action Alternative, approximately 850 loaded trucks per day would be required to transport the limestone. This would mean approximately 1,700 single truck trips per day, assuming an empty backhaul. Section 2.4 of the DEIS contains a more detailed description of the trucking operations.

2.2.2 Rail Route Alternatives

A reasonable and feasible rail alignment would need to connect to the proposed rail-loading track at the quarry site and to the existing UP rail line in a manner that would enable outbound shipments from the quarry to travel east.[7] In the DEIS, SEA conducted an in-depth analysis of four reasonable and feasible rail alignments. These alignments were as follows:

[7] See SGR's Petition for Exemption filed with the Board on February 27, 2003 and letter from SGR to SEA dated May 4, 2004 (Environmental Correspondence Tracking Number #EI-793).

(1) the Proposed Route; (2) Alternative 1; (3) Alternative 2; and (4) Alternative 3 (see Figure 2-1). Commenters to the DEIS questioned whether other reasonable and feasible rail alignments that had the potential to cause less environmental impacts than the rail alignments studied in the DEIS could be developed and, in particular, whether there might be reasonable and feasible rail alignments outside of the historic Quihi area that should be assessed.[8] In order to respond to these comments, SEA requested information from SGR regarding how SGR had developed the four potential rail alignment routes that SEA studied in depth in the DEIS and whether SGR had studied the feasibility of rail routes that are farther to the west or farther to the east of those four alignments and that could potentially bypass the Quihi area.

In response to SEA's request,[9] SGR submitted information stating that initially 15 potential rail alignments had been considered, all of which were in the same general area as the four alignments considered in depth in the DEIS. According to SGR, these 15 alignments consisted of eight basic alignments and seven variations of those alignments. SGR explained that it had screened the alignments by using specific criteria including: avoidance of wetlands; topography (avoidance of grades in excess of 1%); avoidance of curves in excess of 4 degrees near the ends of the line and 3 degrees near the central part of the line; limiting the number of properties required to be crossed; and minimization of the number of properties that might have to be bisected. According to SGR, apart from the Proposed Route, Alternative 1, Alternative 2, and Alternative 3, none of the other initial routes fully satisfied these screening criteria.

SGR also asserted that other alternative alignments further to the east or to the west of the routes studied in depth in the DEIS, essentially bypassing the Quihi area, would not be reasonable or feasible. According to SGR, among other problems, a western bypass route would traverse areas containing a large number of historic resources and would also cross more floodplain than any of the four routes studied in depth in the DEIS.

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[8] SEA had identified a potential rural historic landscape in the Quihi area in the DEIS.

[9] Appendix B contains SEA's requests for information and SGR's responses to those requests.

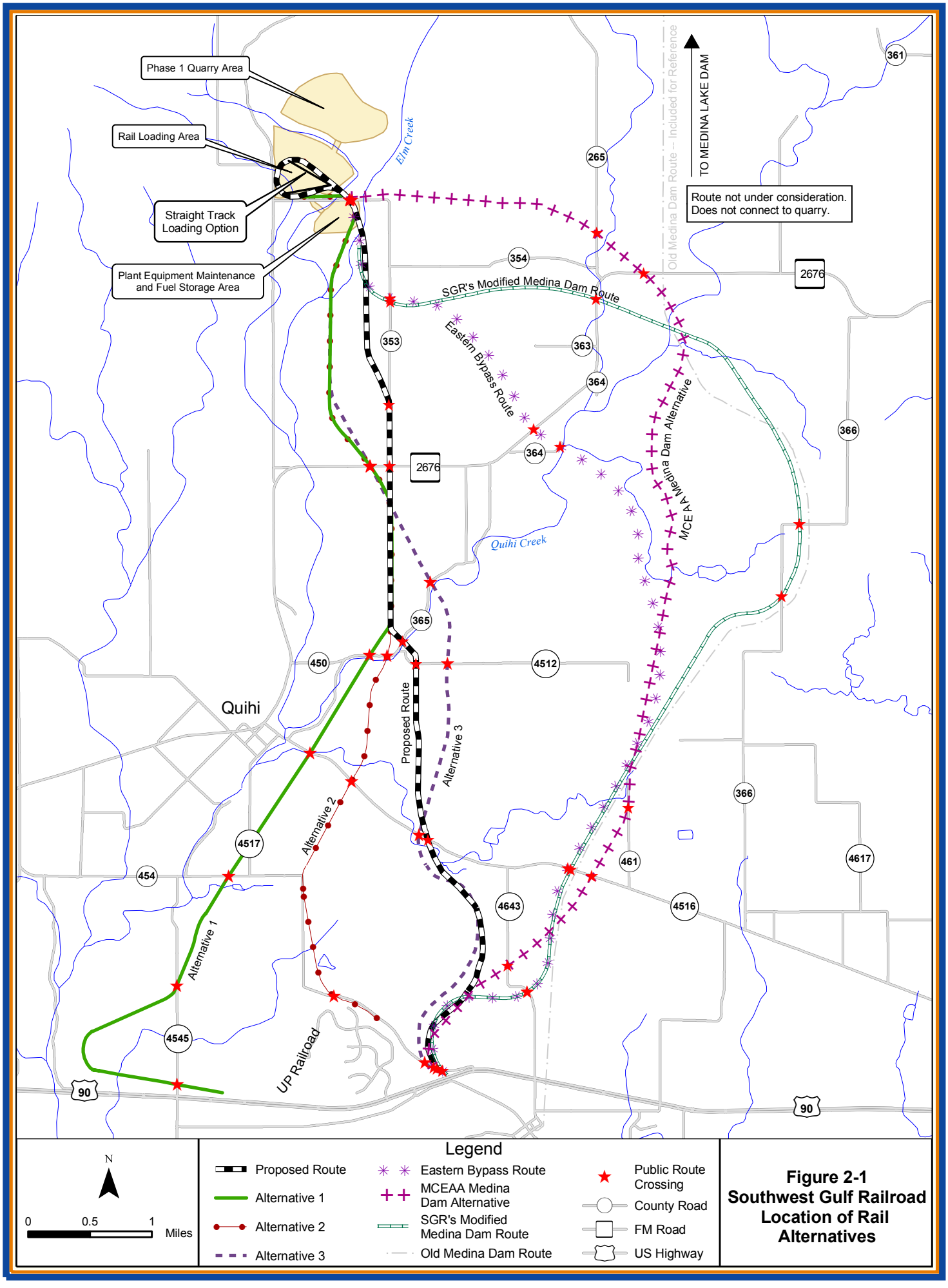

Figure 2-1
Southwest Gulf Railroad
Location of Rail Alternatives

As for an Eastern Bypass Route, SGR stated that any such route would require a degree of cut and fill that would be much greater than the four routes studied in depth in the DEIS, making such a route infeasible. Nevertheless, in order to address the feasibility of an eastern bypass route, and to respond to SEA's specific questions regarding the determination of cut and fill volumes, SGR developed two eastern alignments (the Eastern Bypass Route and SGR's Modified Medina Dam Route) and provided SEA with a study of the cut and fill calculations for these two routes as compared to the Proposed Route, Alternative 1, Alternative 2, and Alternative 3.

One of these routes, SGR's Modified Medina Dam Route, had initially been developed prior to issuance of the DEIS. MCEAA, as well as several other parties, had submitted comments in response to the Draft Scope of Study for the EIS suggesting, as an alternative rail alignment, one that used a portion of railroad right-of-way utilized to facilitate the construction of the Medina Dam in the early 1900s. According to MCEAA, such an alignment would cause fewer potential environmental impacts than the Proposed Route, Alternative 1, Alternative 2, or Alternative 3. In particular, MCEAA asserted that a route using a portion or portions of the old Medina Dam route would traverse less floodplain and impact fewer historic resources than the Proposed Route, Alternative 1, Alternative 2, or Alternative 3.

In response to MCEAA's comments, SGR had submitted information stating that it had assessed several variations that would utilize part of the old Medina Dam route and connect the UP rail line to VCM's proposed quarry, including SGR's Modified Medina Dam Route. SGR stated at the time that none of these routes would be reasonable and feasible, due to the amount of cut and fill that would be needed.

As discussed in Section 2.4.2 of the DEIS, SEA independently evaluated the information provided by SGR regarding potential routes that could use portions of the old Medina Dam route. Based on the information then available, SEA concurred that no routes using the old Medina Dam route appeared to be reasonable and feasible.

The cut and fill calculations submitted by SGR subsequent to issuance of the DEIS and SEA's preliminary review of that information supported SEA's initial conclusion that a rail route that traverses the area to the east of the alignments considered in depth in the DEIS would require greater amounts of cut and fill to build.

However, MCEAA submitted comments challenging the accuracy of the cut and fill calculations prepared by SGR and suggested that another alternative rail route that would use a portion of the old Medina Dam route should be studied.[10] According to MCEAA, this other alternative (the MCEAA Medina Dam Alternative) is a reasonable and feasible alternative that could require less cut and fill than the eastern routes developed by SGR. MCEAA also alleged that the grading and design considerations used by SGR to determine cut and fill volumes may not be appropriate.

Due to the controversy surrounding the cut and fill volumes, SEA determined that, in this proceeding, cut and fill volumes alone should not be a basis for excluding a potential rail route from being considered reasonable and feasible. However, SEA conducted an independent verification of the cut and fill volumes submitted by SGR for the Proposed Route, Alternative 1, Alternative 2, Alternative 3, the Eastern Bypass Route, and SGR's Modified Medina Dam Route, and determined that the methodology used by SGR for estimating the gross cut and fill volumes is in accordance with the accepted civil engineering practice of using the average end area method process and an industry standard Computer-Aided Design and Drafting package.[11] Using the same criteria that SGR used to develop cut and fill estimates for those six rail line routes, SEA also developed cut and fill volumes for the MCEAA Medina Dam Alternative for comparison purposes.

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[10] Appendix B contains the correspondence submitted by MCEAA.

[11] The average end-area method is based upon the use of cross sections to develop estimates of cut and fill earthwork volumes. The accuracy of this method is dependent upon the interval at which the cross sections are created. For this project, SGR created cross sections at 50-foot intervals, which provides a reasonable degree of accuracy for calculating cut and fill volumes. End-areas are calculated by measuring the areas requiring cut or fill on each cross section. Volumes are developed by averaging the end-areas for consecutive cross sections and multiplying by the interval length (50 feet in this case) between those cross sections.

SEA notes that because SGR has not yet developed final engineering plans for any of the alternative rail line alignments, the amount of cut and fill that would be needed to build any of these routes can only be approximated at this time. According to the cut and fill verification performed by SEA, Alternative 2 would require the least total volume of gross cut and fill, followed by the Proposed Route.[12] After the Proposed Route and Alternative 2, Alternative 1 would be the next most desirable, based upon the gross volume of cut and fill, followed by the MCEAA Medina Dam Alternative, then Alternative 3, then the Eastern Bypass Route, and finally SGR's Modified Medina Dam Route.

Please see Appendix C-2 of this SDEIS for a detailed summary of SEA's cut and fill analysis, setting forth SEA's gross cut and fill volumes, floodplain cut and fill volumes, and net cut and fill volumes (gross cut and fill volumes minus floodplain cut and fill volumes). SEA's verification process yielded essentially no discrepancies between SEA's gross cut and fill numbers and SGR's gross cut and fill numbers for any of the six rail line alternatives examined by SGR. SEA's calculations of the floodplain cut and fill volumes and the net cut and fill volumes differ somewhat from SGR's calculations of those cut and fill volumes, due to differences in interpretation of the floodplain limits and the application of the cut volumes within the floodplain areas. However, from an environmental impact standpoint, the gross cut and fill volumes are more indicative of the actual impact upon the environment, because the gross cut and fill numbers indicate the total volume of earthwork that would need to be moved for the construction of a particular route.

Based on all information to date, SEA believes that a full spectrum of reasonable alternative rail routes for this proceeding has now been assessed. The reasonable and feasible alternatives that SEA has studied include: (1) rail alignments that traverse directly through the Quihi area (the central corridor); (2) rail alignments that bypass the Quihi area to the east (eastern corridor); (3) and rail alignments that bypass the Quihi area to the west (western

[12] Although SEA is not conducting a cost-benefit analysis of the various alternatives, SEA notes that the Proposed Route would require less fill than Alternative 2 compared to the amount of cut, meaning that it would likely be the most desirable to build from a cut and fill engineering standpoint, because removing soil is less costly than having to import and compact additional fill.

corridor). The four alternative rail routes studied in depth in the DEIS (the Proposed Route, Alternative 1, Alternative 2, and Alternative 3), constitute a reasonable range of alternatives for the central corridor and no further routes in this corridor need to be studied. SGR's Modified Medina Dam Route, the Eastern Bypass Route, and the MCEAA Medina Dam Alternative constitute a reasonable range of alternatives for the eastern corridor.[13] Any western bypass route that is not significantly longer than the four routes studied in the DEIS would pass through more floodplain area and would impact a large number of historic resources (including historic resources in the New Fountain, Texas area).[14] Therefore, any such route would be less environmentally preferable than the four routes studied in depth in the DEIS and SEA is excluding any such route (though no such route has been developed to date) from further consideration.

In short, in addition to the four rail alignments studied in depth in the DEIS, there are three additional reasonable and feasible alternative rail routes that have been studied in depth in this SDEIS (SGR's Modified Medina Dam Route, the Eastern Bypass Route, and the MCEAA Medina Dam Alternative). In this SDEIS, SEA is presenting the results of this study for public review and comment. Figure 2-1 is a map showing the three Eastern Alternatives, as well as the four rail routes assessed in depth in the DEIS (Proposed Route, Alternative 1, Alternative 2, and Alternative 3) and the old Medina Dam route (included for reference). Section 2.3 sets forth a brief description of each of the rail line alternatives studied in the DEIS and Section 2.4 sets forth

[13] MCEAA has asserted that the other deviations that SGR initially studied for an alignment that would use part of the old Medina Dam route as well as the original Medina Dam route itself need to be studied further (see letter from MCEAA to SEA, dated October 5, 2005, Environmental Correspondence Tracking Number #EI-1698). However, MCEAA has not shown that SGR's Modified Medina Dam Route, the Eastern Bypass Route, and the MCEAA Medina Dam Alternative do not constitute a reasonable range of routes in the eastern corridor. Moreover, the original Medina Dam route on its own would not meet the purpose and need for SGR's rail line, since it does not connect to VCM's proposed quarry.

[14] SEA has not approximated the length that such a route would need to be (because no such route has been developed). However, from a review of the Federal Emergency Management Agency's floodplain map for Medina County, it appears that any western bypass route that would cross a comparable amount of floodplain to the alternative rail routes under consideration would need to connect to the UP rail line many miles to the west of the quarry, which would significantly increase the line's length.

a brief description of each of the Eastern Alternatives. Chapter 6 contains a detailed comparison of the seven potential rail alternatives for this rail construction project, as well as the No-Action Alternative.

2.3 The Rail Line Alternatives Studied in the DEIS

As discussed in more detail in Chapter 5, the four rail routes studied in the DEIS would all traverse the Quihi Rural Historic District, eligible for listing in the National Register of Historic Places (National Register) at the state level of significance, and the Upper Quihi Rural Historic District, eligible for listing in the National Register at the local level of significance. Below is a description of the physical location of each of these routes.

2.3.1 The Proposed Route

SGR's Proposed Route, approximately 7.5 miles in length,[15] would cross about ten individual properties not owned by SGR or its affiliates (according to SGR). This route would include ten at-grade crossings of the following roads: three private roads;[16] six County Roads (County Road 454, County Road 4516, County Road 4512, County Road 365, and County Road 353 twice); and one state maintained road (Farm to Market Road (FM) 2676). Apart from the crossing of FM 2676, this route would not traverse any state-owned property. The Proposed Route would include ten stream crossings, two of which would be crossed by the loading track under any of the rail line alternatives.

2.3.2 Alternative 1

Alternative 1 would connect with the UP line approximately three miles west of the Proposed Route. This route would be about 1.5 miles longer than the Proposed Route and would cross about 20 individual properties not owned by SGR or its affiliates (according to SGR). This alternative would include twelve at-grade crossings of the following roads: four private roads;

[15] Although SEA described the Proposed Route as about seven miles in length throughout the DEIS, the more detailed engineering information provided by the railroad (see Appendix B) indicates that the Proposed Route is about 7.5 miles in length.

[16] SEA notes that SEA did not include the potential private roadway crossings in the DEIS but has decided to include them in this SDEIS.

seven County Roads (County Road 353, County Road 365, County Road 4516, County Road 4517, County Road 454, and County Road 4545 twice); and one state maintained road (FM 2676). Apart from the crossing of FM 2676, this route would not traverse any state-owned property. Alternative 1 would include eight stream crossings, two of which would be crossed by the loading track under any of the rail line alternatives.

2.3.3 Alternative 2

Alternative 2 would connect with the UP rail line approximately 0.3 miles northwest of the Proposed Route's connection with the UP rail line, and would be 0.5 miles shorter than the Proposed Route. This route would cross about 18 individual properties not owned by SGR or its affiliates (according to SGR). This alternative would include seven at-grade crossings of the following roads: two private roads; four County Roads (County Road 353, County Road 365, County Road 4516, and County Road 454), and one state maintained road (FM 2676). Apart from the crossing of FM 2676, this route would not traverse any state-owned property. Alternative 2 would include seven stream crossings, two of which would be crossed by the loading track under any of the rail line alternatives.

2.3.4 Alternative 3

Alternative 3 would connect with the UP rail line in the same location as the Proposed Route. This route would be about the same length as the Proposed Route and would cross about 16 individual properties not owned by SGR or its affiliates (according to SGR). This alternative would involve eight at-grade roadway crossings, including the following: two private roads; five County Roads (County Road 353, County Road 365, County Road 4512, County Road 4516, and County Road 454); and one state maintained road (FM 2676). Apart from the crossing of FM 2676, this route would not traverse any state-owned land. This route would also include eleven stream crossings, two of which would be crossed by the loading track under any of the rail line alternatives.

2.4 Brief Description of the Eastern Alternatives

The Eastern Alternatives would all traverse the Upper Quihi Rural Historic District, but would not pass through the Quihi Rural Historic District. Below is a description of the physical location of these routes.

2.4.1 The Eastern Bypass Route

The Eastern Bypass Route would connect with the UP line at approximately the same point as the Proposed Route. This route is approximately 9.2 miles in length, making it about two miles longer than the Proposed Route, and, according to the Medina County Appraisal District (MCAD), would cross about 32 individual properties not owned by SGR or its affiliates. This alternative would include 18 at-grade crossings of the following roads: eleven private roads; six County Roads (County Road 353 (twice), County Road 364, County Road 4516, County Road 4643, and County Road 454; and one state maintained road (FM 2676). Apart from the crossing of FM 2676, this route would not traverse any state-owned property. This route would also include eight stream crossings, two of which would be crossed by the loading track under any of the rail line alternatives.

2.4.2 The MCEAA Medina Dam Alternative

The MCEAA Medina Dam Alternative would connect with the UP rail line at approximately the same point as the Proposed Route, and would be approximately 9.9 miles in length, making it about 2.5 miles longer than the Proposed Route. This route would swing farther to the north than any of the other alternatives being evaluated by SEA and would cross about 22 individual properties not owned by SGR or its affiliates, according to MCAD. This alternative would include 16 at-grade crossings of the following roads: ten private roads; five County Roads (County Road 265, County Road 461, County Road 4516, County Road 4643, and County Road 454); and one state maintained road (FM 2676), and would not traverse any additional state-owned land. This route would also include thirteen stream crossings, two of which would be crossed by the loading track under any of the rail line alternatives.

2.4.3 SGR's Modified Medina Dam Route

SGR's Modified Medina Dam Route would connect to the UP line at approximately the same point as the Proposed Route. This route would be approximately 10.9 miles in length, making it about 3.5 miles longer than the Proposed Route, and would cross a total of 16 roads at-grade, including eight private roads; seven County Roads (County Road 353, County Road 366 (twice), County Road 4516, County Road 4643, and County Road 454); and one state maintained road (FM 2676). According to MCAD, SGR's Modified Medina Dam Route would cross about 26 individual properties that are not owned by SGR or its affiliates. Apart from the crossing of

FM 2676, no state-owned property would be traversed. This route would also include nine stream crossings, two of which would be crossed by the loading track under any of the rail line alternatives. SGR's Modified Medina Dam Route is the most eastern route of any of the rail alignments being studied in depth by SEA.

Please see Chapter 6 for SEA's detailed comparison of the eight alternatives being studied in the environmental review process for this proceeding (Proposed Route, Alternative 1, Alternative 2, Alternative 3, Eastern Bypass Route, the MCEAA Medina Dam Alternative, SGR's Modified Medina Dam Route, and the No-Action Alternative).

Table 2-1 below, summarizes the characteristics of each of the rail line alternatives being studied by SEA.

Table 2-1. Rail Line Alternative Routings

Route Name	Studied in DEIS or Eastern Alternative	Length	Total Roadway Crossings	Private Roadway Crossings	County Roadway Crossings	State Roadway Crossings	Number of Individual Property Crossings Not Owned by SGR or Affiliates	Number of Stream Crossings
Proposed Route	DEIS	7.5 miles	10	3	6	1	10	10
Alternative 1	DEIS	9.0 miles	12	4	7	1	20	8
Alternative 2	DEIS	7.0 miles	7	2	4	1	18	7
Alternative 3	DEIS	7.5 miles	8	2	5	1	16	11
Eastern Bypass Route	Eastern Alternative	9.2	18	11	6	1	32	8
MCEAA Medina Dam Alternative	Eastern Alternative	9.9	16	10	5	1	22	13
SGR's Modified Medina Dam Route	Eastern Alternative	10.9	16	8	7	1	26	9

2.5 The Weiblen Modification

In response to SEA's Notice of Intent to Prepare the SDEIS, issued on March 13, 2006 (see Appendix E), SEA received nine comments suggesting a modification of the Eastern Alternatives – the Weiblen Modification.

Specifically, several commenters stated that the Eastern Alternatives would pass through their family farm, the Weiblen Farm, in locations that would disrupt irrigation systems and destroy irrigated farmland (see Appendix E, #EI-1990, #EI-2001, #EI-2002, #EI-2003, #EI-2004, #EI-2005, #EI-2030, #EI-2038, and #EI-2094). They also indicated that their house is located at the intersection of the three Eastern Alternatives. They proposed a potential rail alignment that would essentially be a modification of the Eastern Alternatives. This modified route, the Weiblen Modification, would come off the Proposed Route near the intersection of County Road 4643 and County Road 4516, and travel due north for about a mile before veering east to join either the Eastern Bypass Route or the MCEAA Medina Dam Alternative (see Figure 2-2).

Based on the information available to date, SEA does not believe that a need for an in-depth study of the Weiblen Modification has been shown, for the reasons discussed below.

First, the Weiblen Modification is only a slight modification of two of the alternatives already being examined by SEA (the Eastern Bypass Route and the MCEAA Medina Dam Alternative). Second, it appears that all seven of the rail line alternatives currently under consideration would likely cause some impacts to farmlands and existing farming operations. Thus, this alternative does not appear to have any environmental advantages over the rail routes already under consideration.

In addition, if SEA were to modify routes to shift the potential environmental impacts away from one group of landowners to another group of adjacent landowners – which is what is being requested here – the environmental review process could become endless, since the number of modifications and alternatives that SEA could be requested to study could be potentially limitless. NEPA requires only that a reasonable range of alternatives be studied, and SEA has done that here.

Nevertheless, the SDEIS includes a specific mitigation recommendation to address the concerns raised by the Weiblen family and the concerns of other landowners along the Eastern Alternatives who may be in similar situations. This mitigation recommendation is discussed in Chapter 3 and included in Chapter 6 of this SDEIS (Mitigation Measure #5A).

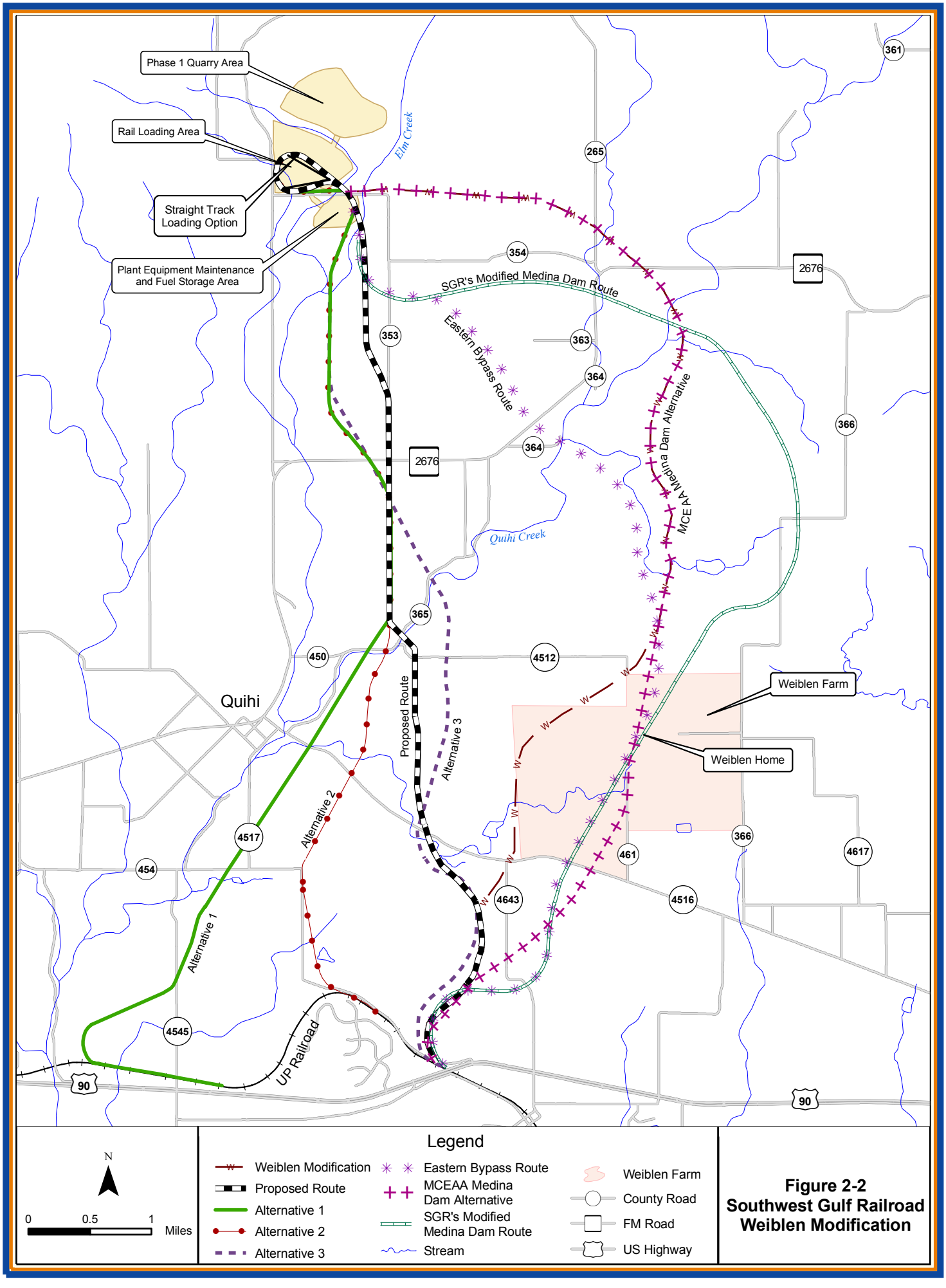

Figure 2-2
Southwest Gulf Railroad
Weiblen Modification